METHOD FOR AUTOMATICALLY CREATING AT LEAST ONE DIALOG BOX ON AN OPERATOR INTERFACE OF A COMPUTER USER STATION

[001]   This is a Continuation of International Application PCT/DE02/02764, with an international filing date of July 26, 2002, which was published under PCT Article 21(2) in German, and the disclosure of which is incorporated into this application by reference.

FIELD OF AND BACKGROUND OF THE INVENTION

[002]   This invention relates to a method for automatically creating at least one dialog box on an operator interface of a computer user station. The computer user station is connected to an industrial process installation via at least one interface so as to transmit data (e.g., process data, status data, control and/or regulating data). Therein, the created dialog box displays the transmitted data of the process installation on the operator interface.

[003]   It is known from the related art that data (e.g., process data, status data, control and/or regulating data) of an industrial process installation can be displayed on an operator interface of a computer user station via so-called "operator modules." Individual, selected data of the respective industrial process installation is graphically displayed in a dialog box on the operator interface, which is individually created for the respective process data. Conventionally, such operator modules have been designed individually in a very time-consuming process, e.g., by using design systems for process display (such as Win CC).

OBJECTS OF THE INVENTION

[004]   It is one object of this invention to provide a time-saving and efficient method so as to automatically create at least one dialog box for displaying data of a process installation on the operator interface of a computer user station.

SUMMARY OF THE INVENTION

[005]   This and other objects of the invention are achieved by a method for automatically creating at least one dialog box on an operator interface of a computer user station, which first assigns process installation data to be displayed to certain, stored types of data. Then, at least one dialog box is created on the operator interface of the computer user station so as to display the data that is to be displayed by means of display types (e.g., pointers, bars, numeric displays, etc.), which are assigned to the respective data types. Hence, the user need no longer determine individually for each of the data how it is to be graphically displayed on the operator interface.

[006]   The method according to the invention makes it possible to automatically create the respective dialog boxes, in particular after selecting the process installation data to be displayed and after indicating the memory addresses of this data in the computer user station. This greatly shortens design time and prevents design errors.

[007]   According to an advantageous embodiment of the method, the automatically generated dialog box can be called up via a link identifier of a further (first) dialog box. Thus, at first, during operation of the respective process installation, only a first dialog box is called up on the operator interface, and the user can display the additional, automatically generated dialog box(es) on the operator interface via respective link identifiers in the first dialog box.

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[008] Advantageously, the first dialog box is saved in a graphic library that is stored in the computer user station, for example, and, therefore, the first dialog box need not be created by the user. Alternatively and/or additionally, the first dialog box may be created via a supporting graphics program, wherein individual graphic implementations or realizations may also be taken into account.

[009] Another advantageous embodiment of the method according to the invention makes it possible to retrieve a complete or partial selection of the transmitted process installation data to be displayed on the operator interface of the computer user station. Thus, the user can define whether additional dialog boxes are automatically created so as to display all data or only a limited number of data.

[010] In order to automatically generate the graphic display of the selected data in the method according to the invention, stored assignments between the data types and the display types (e.g., pointers, bars, numeric display, etc.) are retrieved. Data types that can be differentiated include process data, status data, control and/or regulating data. It is possible to stipulate that the "process data" data type (e.g., temperature) is assigned, for example, to the "numeric display" display type (e.g., display in °C). The assignments between the data types and the display types can be expanded or modified and can be adapted to the process installation or to user requirements. Therein, certain graphic user profiles may also be created.

[011] Another exemplary embodiment of the method according to the invention permits changing the number and type of the display types and/or the data types so as to be able to adapt to changing user needs.

BRIEF DESCRIPTION OF THE DRAWINGS

[012]   Further details of this invention can be derived from the single drawing, which shows a flow chart of individual method steps for automatically generating a dialog box on an operator interface of a computer user station.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[013]   The exemplary embodiment illustrated in the single drawing shows how, in a process installation (e.g., interconnected machine tools with individual converter-fed engines), a dialog box for displaying the engine temperature of a converter-fed engine is created on the operator interface of a computer user station.

[014]   First, as is known from conventional design methods, the user selects the data element "engine temperature", which is the data element to be displayed, from the data that is transmitted from the process installation to the computer user station. Furthermore, the user indicates the memory address of the data element "engine temperature" in the computer user station, in particular. This facilitates a call-up of the respectively current engine temperature, which is transmitted from the process installation, on the operator interface (method steps 1 and 2).

[015]   The computer user station is connected, in known manner, to the industrial process installation by at least one data line, so that, via the data connection, the respective data of interest is stored via interfaces at the respective memory addresses. Thus, this data of the industrial process installation is present in the computer user system and can be taken into account in the graphic display on the operator interface.

[016]   The method steps 3 and 4 take place in deviation from the related art. First, based on a predetermined assignment, the data element "engine temperature", which is to be displayed, is assigned to the data type "process data" (method step 3).

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[017]   Finally, the dialog box for displaying the selected data element "engine temperature" is automatically generated, in that the display type "numeric display" is determined for the data element "engine temperature". This is due to the fact that, in accordance with an existing assignment (in particular, an assignment that can be modified), process data is displayed as a numeric display, e.g., as a current engine temperature: 94 °C, in the created dialog box (method step 4).

[018]   In supporting manner, graphically adapted display forms, which are known per se (e.g., templates according to Windows standard), can be used in the respective display program that is used on the operator interface so as to display the created dialog box.

[019]   In accordance with the stored assignments between the data types and the display types, further dialog boxes may be automatically created for further selected data, which have access to the memory addresses of the selected data and which graphically display the data stored there for the industrial process installation.

[020]   Other dialog boxes are automatically created, which, after retrieving a first dialog box, can be retrieved by appropriate link identifiers in the first dialog box.

[021]   The above description of the preferred embodiments has been given by way of example. From the disclosure given, those skilled in the art will not only understand the present invention and its attendant advantages, but will also find apparent various changes and modifications to the structures and methods disclosed. It is sought, therefore, to cover all such changes and modifications as fall within the spirit and scope of the invention, as defined by the appended claims, and equivalents thereof.